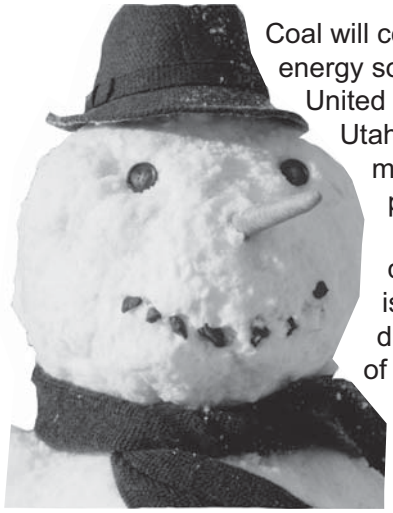
Energy Resources in Utah

by Jon Allred

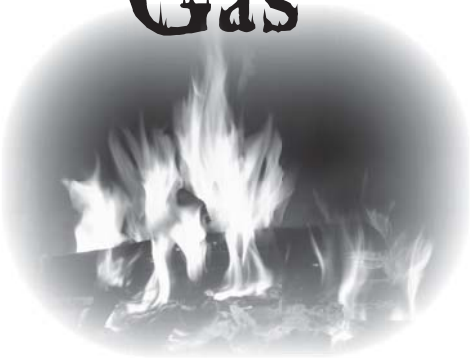
Coal



Coal will continue to be the most important energy source produced in Utah and the United States. Reserves at producing Utah coal mines total more than 300 million tons and the state's coal production ranks 13th among U.S. states. More than 90 percent of Utah's electricity demand is met by coal. Coal also produces more pollution per unit of heat than many other energy sources. However, its great abundance and low cost assure its long-term popularity.

Even so, revenues at Utah coal mines declined to a 16-year low in 2003 due to foreign competition and general economic conditions. Employment in Utah coal mining continues to shrink due to labor-saving technology. Environmental concerns and land use restrictions will make some coal reserves unavailable and raise production costs at others.

Natural Gas



and production is in long-term decline. The tapping of coal bed methane fields is a relatively new process that will make up for decline in conventional natural gas production for about 10 years before also entering into long-term decline.

Renewable Energy and Other Energy

Petroleum

Utah crude oil reserves total more than 220 million barrels. However, production in Utah oil fields has declined to 13 million barrels per year due to high cost and depletion of the best fields. Meanwhile, Utah consumer demand for petroleum products is rising past 50 million barrels per year, causing Utah refineries to purchase increasing amounts of crude oil from other states and Canada. Eastern Utah contains billions of tons of crude oil in tar sands and shale oil but no affordable technology has been proven for exploiting that resource.

Clean-burning natural gas is a convenient fuel with many uses. As a result, Utah has exhausted much of its known reserves

Use of wind power is growing worldwide and in the United States. No significant wind power is yet produced in Utah due to lack of good sites near existing power corridors and the low cost of electricity from coal-fired plants.

Abundant sunshine in Utah makes possible an estimated total annual generation of about 417 megawatt hours of electricity from photo-voltaic (PV) equipment. The initial high cost of PV equipment makes it a reasonable power source only in remote, off-grid areas where diesel oil and propane gas are inconvenient alternatives.

Western Utah is underlain by one of the world's best geothermal regions. About 211 Giga-watt hours of electricity are generated annually at two geothermal steam plants. With careful engineering, more geothermal power is possible.

The burning of municipal solid waste for power generation supplies 10 Giga-watts per year of electricity. Methane gas from sanitary landfills supplies a very small additional amount of power. Neither source could ever meet a substantial fraction of Utah's energy needs.

Figure 1.1

Utah Energy Balance:

Production and Consumption, 1960-2003

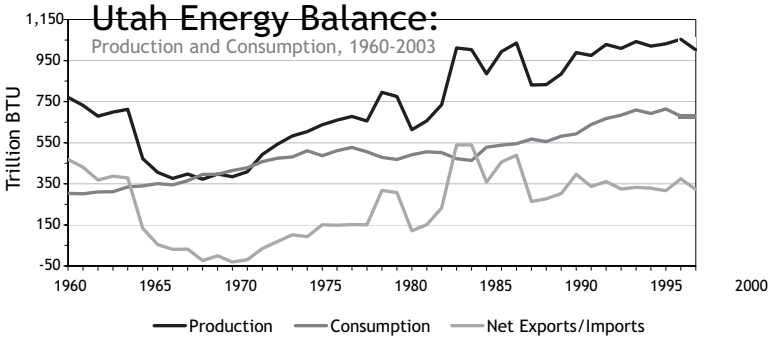
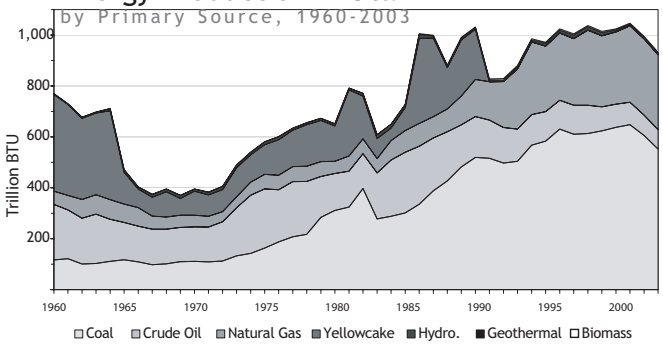


Figure 1.3a

Energy Production in Utah

by Primary Source, 1960-2003



Current production of energy from biomass in Utah is too small for effective measurement. Regular harvesting of forest waste in Utah could be a significant source of fuel for power generation, but only with resolution of substantial environmental controversy.